IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION FOR U.S. LETTERS PATENT

Title:

NETWORK BASED BIOS RECOVERY METHOD

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TITLE OF INVENTION

NETWORK BASED BIOS RECOVERY METHOD

BACKGROUND OF THE INVENTION

When a computer is turned on, the first action the CPU takes is to send a

5   message to activate the Basic Input and Output System (BIOS). The BIOS then runs a

series to tests, called the POST (Power On Self Test), to make sure that the system devices

are working correctly. These tests generally include: 1) initializing system hardware and

chipset registers; 2) initializing power management; 3) testing RAM; 4) enabling the

keyboard; 5) testing serial and parallel ports; 6) initializing floppy disk drives and hard disk

10   controllers; and 7) displaying system summary information. The BIOS enables the essential

functions for the computer to operate.

If a computer's BIOS is corrupted, it can not function. However, typical

computer system system BIOSes have the capability of restoring a valid BIOS image in the

event that they become corrupt. This is accomplished by storing a recovery program in a

15   block of flash memory that is not in-system writable, thus insuring that the recovery

program cannot become corrupt. The recovery program is usually a small, simple piece of

code that has the ability of initializing just enough system hardware to retrieve a new code

image from a floppy disk or other removable media.

The problem with using removable media is that at the time this type of crisis

20   occurs, most users do not have a disk available with the BIOS, and all of the files necessary

for recovery on it. If there is no other functional computer around with which to create

one, then the user will have to wait for one to be delivered from the company where the

machine was purchased.

Therefore, there exists a need and desire for a system and method that will allow

25   a user to recover a corrupted BIOS without a disk containing the computer system's BIOS.

1

BRIEF SUMMARY OF THE INVENTION

The present invention mitigates the problems associated with the prior art and provides a unique system and method for recovering a corrupt BIOS over a modem, ISP, WAN, LAN, or the Internet.

5   In accordance with an exemplary embodiment of the present invention, a computer's BIOS recovery program has the minimum necessary software built into the flash Boot Block to interface the hardware, connect to a recovery server, download an uncorrupted version of the BIOS and flash the new BIOS. If the computer is connected to a recovery server, for example, through a LAN, the BIOS recovery program will initialize

10   the base chipset, base RAM, and the network card. Additional functions can be included in the BIOS recovery program, for example, the utility that performs the flash programming, but since conserving ROM space is usually a concern, this utility as well as any other utilities necessary to replace the corrupted BIOS are stored on the recovery server.
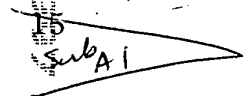
BRIEF DESCRIPTION OF THE DRAWINGS

15   FIG. 1 is an illustration of the various methods of access to a recovery server ;

FIG. 2 is a flowchart of the program flow for a recovery program;

DETAILED DESCRIPTION OF THE INVENTION

In the following detailed description, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration specific

20   embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to make and use the invention, and it is to be understood that structural changes may be made and equivalent structures substituted for those shown without departing from the spirit and scope of the present invention.

2

In accordance with the present invention, a computer system can recover from a corrupted BIOS by using a LAN, WAN, modem, ISP or the Internet. Fig. 1 illustrates a LAN/WAN recovery BIOS. When a computer system with a LAN/WAN recovery BIOS is turned on at initialization segment 10, the first operation the computer system performs

5   is to perform a validity check on the system BIOS at segment 11. The computer system can determine if the BIOS image is intact by calculating a checksum or any other method known in the art for determining if a piece of code is corrupted.

If the code is valid as detected at processing segment 12, the computer system performs a normal boot at segment 13. If the code is not valid as detected at processing

10   segment 12, the computer system initializes the chipset, RAM and network card at segment 14. A typical chipset – which controls the flow of data between the CPU, motherboard bus and the system memory – is an Intel 430HX PCIset for Pentium processors, but any chipset may be used.

The computer system then attempts to locate the recovery server at segment 15.

15   One method known in the art for locating a computer on a LAN or WAN is to have a predetermined network name associated with the recovery server. Other methods that are known in the art can also be used. If the recovery server is not found as detected at processing segment 16, the computer system uses a conventional recovery method, i.e. prompting the user to insert a disk with an uncorrupted version of the BIOS on it, at

20   segment 17.

3

If a recovery server is found as detected at processing segment 18, the computer system connects and sends its system information to the recovery server at segment 18. The computer system then downloads the BIOS image and utility at segment 19. Finally, the computer system programs the BIOS chip with the uncorrupted BIOS and reboots at

5   segment 20. The computer system then returns to segment 11 to perform the BIOS validity check again upon reboot.

A computer system can recover from a corrupted BIOS without an uncorrupted version of the BIOS on a floppy disk even if the computer system is not connected to a LAN or WAN. Fig. 2 illustrates the various methods a computer system can use to retrieve

10   an uncorrupted version of its BIOS when not connected to a LAN or WAN. Computer systems 22 and 25 can connect to BIOS recovery server 24 over the internet. When computer system 25 connects to BIOS recovery server 24 over the internet computer system 25 uses a modem to connect to the internet instead of a network card to connect to a LAN or WAN, so it will initialize a modem instead of a network card in segment 14 and

15   when the computer system connects to a recovery server in segment 18, it will connect using the modem, not a network card.

While the invention has been described with reference to an exemplary embodiments various additions, deletions, substitutions, or other modifications may be made without departing from the spirit or scope of the invention. Accordingly, the

20   invention is not to be considered as limited by the foregoing description, but is only limited by the scope of the appended claims.

4